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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/615,730	07/09/2003	David B. Hall	NGC-144/000169-199	1806
32205	7590	01/26/2005	EXAMINER	
PATTI & BRILL ONE NORTH LASALLE STREET 44TH FLOOR CHICAGO, IL 60602			PYO, KEVIN K	
			ART UNIT	PAPER NUMBER
			2878	

DATE MAILED: 01/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/615,730	<b>Applicant(s)</b> HALL, DAVID B.	
	<b>Examiner</b> Kevin Pyo	<b>Art Unit</b> 2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>7/9/03</u> . | 6) <input type="checkbox"/> Other: ____  |

***Claim Objections***

1. Claims 19 and 23 are objected to because of the following informalities:

In claim 19, line 3, "calculate" should be changed to --calculates--.

In claim 19, line 5, "calculate" should be changed to --calculates--.

In claim 23, line 3, "calculate" should be changed to --calculates--.

In claim 23, line 5, "calculate" should be changed to --calculates--.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

2. Claims 1-30 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Applicant discloses that a processor (112) employs only four samples of an optical pulse (130) from a sensor (124) to calculate phase angle ( $\Phi$ ). However, it is unclear how and in what manner a processor (112) is used to calculate phase angle using **only** four samples. How is the claimed processor different from an ordinary processor? It appears that it does not matter how many samples were input into a processor as long as it uses four samples to calculate phase angle. If this is true, it appears that any ordinary processor using four samples to calculate phase angle (regardless the number of samples received by the processor) would be functionally equivalent to the claimed processor. Furthermore, it is unclear how the claimed processor would function if the claimed processor receives more than four samples. Clarification is required.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-7 and 15-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Hall (6,122,057).

Regarding claims 1 and 15, Hall shows in Fig.1 an apparatus with a sensor array (16) that employs a parameter to induce a time-varying phase angle on an optical signal that comprises a phase generated carrier (col.1, lines 54-60) and a processor component (28) that employs only four samples to calculate the phase angle, wherein all the four samples are based on the optical signal (col.1, line 61-col.2, line 12).

Regarding claims 2, 5 and 17, the limitations therein are disclosed in col. 4, lines 30-55.

Regarding claims 3, 6 and 18, the limitations therein are disclosed in col.6, lines 13-52.

Regarding claims 4 and 16, the limitations therein are disclosed in col.1, lines 41-col.2, line 10 and col.5, line 29.

Regarding claim 7, the limitation therein is disclosed in col.4, line 55.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hall (6,122,057).

Regarding claims 27-30, the device of Hall has been discussed above. Hall differs from the claimed invention in that it does not specifically mention the use of one or more computer-readable signal-bearing media. However, it would have been obvious to one of ordinary skill in the art to utilize the processor (28) of Hall in a computer which comprises a computer readable signal-bearing media in view of the desire to store a signal in the media and process it at later time.

*Allowable Subject Matter*

7. Claims 8-14 and 19-26 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 1st paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Regarding claims 8-14, the prior art fails to disclose or make obvious the claimed method comprising, in addition to the recited steps of the claim, the step of calculating the peak value  $I_p$  of the in-phase term  $I$  in the manner recited in claim 8.

Regarding claims 19-26, the prior art fails to disclose or make obvious the claimed apparatus comprising, in addition to the recited features of the claim, a processor component calculates the quadrature term  $Q$  in the manner recited in claim 19 or claim 23.

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8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hall (6,154,308) is cited for disclosing a sensor array having mismatched interferometers producing signals (S1 and S2).

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Pyo whose telephone number is (571) 272-2445. The examiner can normally be reached on Mon-Fri (with flexible hour), First Mon. off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kevin Pyo  
Primary Examiner  
Art Unit 2878

Pkk  
1/15/05